Tutorial 6

Exercise 1

In Figure 1, the pointer front points at the first node, the pointer next points at the next node and the pointer c points at the third node.

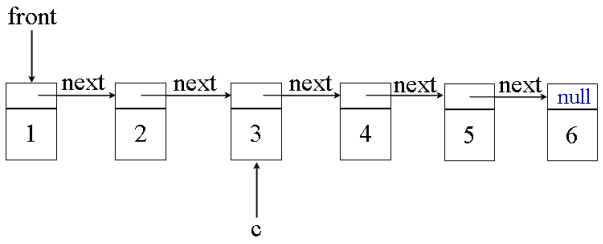

Figure 1

Complete the following five Java statements:

```
c = front
f          = front.next.next.next;
c.next.next.next   = c.n.n.n.n
f.n        = front.next.next;
c.next.next.next.next = None
```

such that after executing these statements, the linked list in Figure 1 is split into two linked lists. One list starts at node 1 pointed by c pointer and contains the elements in the order 1, 2, 3 and 5. The other list starts at node 4 pointed by front pointer and contains the elements in the order 4 and 6. These two lists are shown in Figure 2. (Note: adding or changing the given part(s) of the statement(s) is NOT allowed)

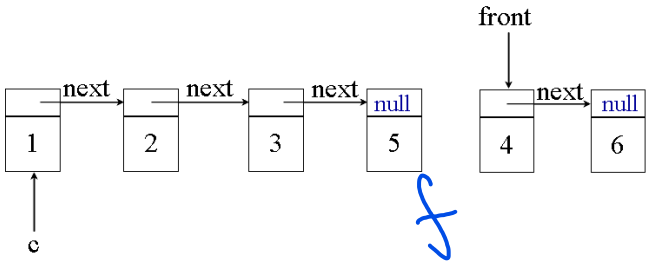

Figure 2

Exercise 2

In the following linked list, as shown in Figure 3, the pointer firstNode is currently pointing at the first node. The pointer p is currently pointing at the second node.

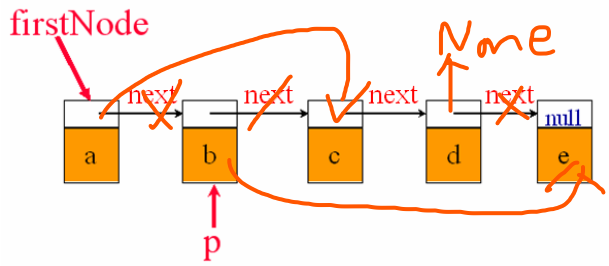

Figure 3

Complete the following statements:

```
firstNode.next = p
p.next = p
firstNode.next.next = 
```

such that after executing these statements, the above linked list is split into two linked lists. One list starts at where firstNode points at and it contains the elements a, c and d. The other list starts at where p points at and it contains the elements b and e. These two lists are shown in Figure 4.

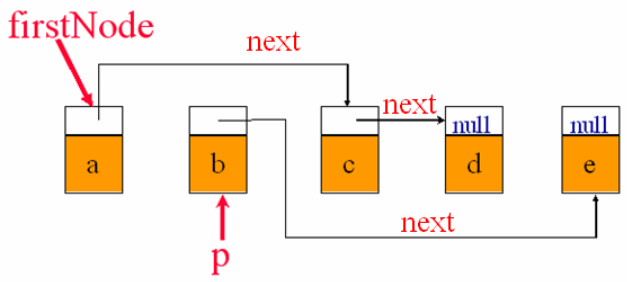

Figure 4

Exercise 3

Given the following example list in python:

```
#Tutorial 3 Exercise 3
l_list = SLinkedList()
l_list.add(0, "Red")
l_list.add(1, "Green");
l_list.add(2, "Black");
l_list.add(3, "Pink");
l_list.add(4, "Orange");
print("Original linked list: ")
l_list.listprint()
```

1. Try to append the element “Yellow” to the end of the linked list.
2. Try to iterate the linked list in reverse order.
3. Try to display the elements and their positions in the linked list.
4. Try to swap two elements “Green” and “Pink” in the linked list.
5. Try to remove and return the first element of the linked list.
6. Try to convert the linked list to array list.